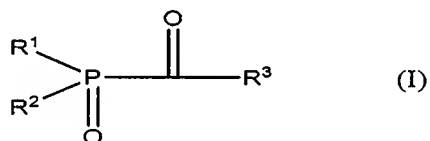


### AMENDMENTS TO THE CLAIMS

1. (Currently amended) An energy curable intaglio security document printing ink, curing by free radical, acrylate chemistry, and including a photoinitiator comprising an acylphosphine oxide, whereby the security document printing ink does not fluoresce in at least the visible light wavelength region when exposed to ultraviolet light.

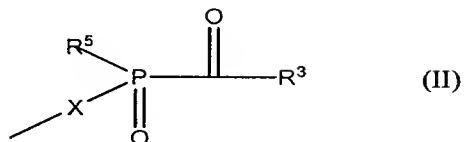
2. (Original) A printing ink according to Claim 1, in which said acylphosphine oxide is a compound of formula (I):



in which:

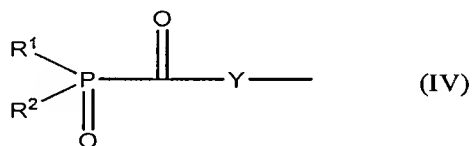
R<sup>1</sup> and R<sup>2</sup> are independently selected from C<sub>1</sub> – C<sub>12</sub> alkyl groups, C<sub>3</sub> – C<sub>7</sub> cycloalkyl groups, aryl groups, aralkyl groups, heterocyclic groups having from 3 to 7 ring atoms, of which at least one is a sulphur or nitrogen atom and groups of formula –COR<sup>3</sup>,

or R<sup>2</sup> represents a group of formula –OR<sup>4</sup>, where R<sup>4</sup> represents a C<sub>1</sub> – C<sub>6</sub> alkyl group, an aryl group, an aralkyl group or a cationic group or atom, or R<sup>2</sup> represents a group of formula (II):



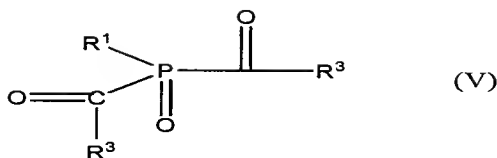
where X represents a C<sub>1</sub> – C<sub>18</sub> alkylene group or a biphenyldiyl group, and R<sup>5</sup> represents any of the groups represented by R<sup>1</sup> or a group of formula –OR<sup>4</sup>, and

R<sup>3</sup> represents a C<sub>1</sub> – C<sub>6</sub> alkyl group, an aryl group, a heterocyclic group having from 3 to 7 ring atoms, of which at least one is a sulphur or nitrogen atom, or a group of formula (IV):



where Y represents a C<sub>1</sub> – C<sub>18</sub> alkylene group a phenylene group, a cyclohexylene group or a biphenyldiyl group.

3. (Original) A printing ink according to Claim 2, in which said acylphosphine oxide is a compound of formula (V):



in which:

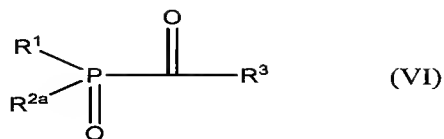
R<sup>1</sup> represents a C<sub>1</sub> – C<sub>12</sub> alkyl group, a cyclohexyl group or an aryl group; and

R<sup>3</sup> is as defined in Claim 2.

4. (Original) A printing ink according to Claim 3, in which each R<sup>3</sup> is independently selected from phenyl groups and phenyl groups having from 1 to 4 halogen and/or C<sub>1</sub> – C<sub>6</sub> alkyl and/or C<sub>1</sub> – C<sub>6</sub> alkoxy substituents.

5. (Previously presented) A printing ink according to Claim 4, in which R<sup>1</sup> represents a C<sub>1</sub> – C<sub>12</sub> alkyl group or a phenyl group which is unsubstituted or has from 1 to 3 C<sub>1</sub> – C<sub>6</sub> alkyl or alkoxy substituents.

6. (Original) A printing ink according to Claim 2, in which said acylphosphine oxide is a compound of formula (VI):

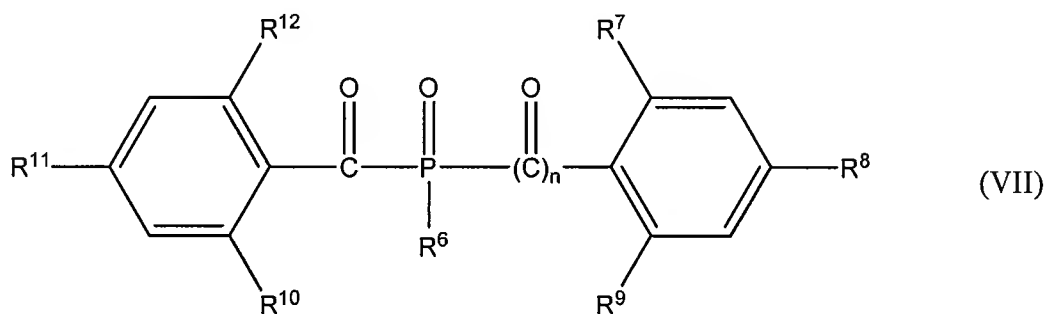


in which:

R<sup>1</sup> and R<sup>3</sup> are as defined in Claim 2; and

R<sup>2a</sup> represents a C<sub>1</sub> – C<sub>12</sub> alkyl group, a C<sub>3</sub> – C<sub>7</sub> cycloalkyl group, an aryl group, an aralkyl group, a heterocyclic group having from 3 to 7 ring atoms, of which at least one is a sulphur or nitrogen atom, or a group of formula — OR<sup>4</sup>, where R<sup>4</sup> is defined in Claim 2.

7. (Original) A printing ink according to Claim 2, in which said acylphosphine oxide is a compound of formula (VII):



in which:

n is 0 or 1;

R<sup>6</sup> represents a C<sub>1</sub> – C<sub>12</sub> alkyl group, a C<sub>1</sub> – C<sub>6</sub> alkoxy group, a phenyl group or a phenyl group having from 1 to 4 substituents selected from C<sub>1</sub> – C<sub>6</sub> alkyl groups, C<sub>1</sub> – C<sub>6</sub> alkoxy groups and halogen atoms; and

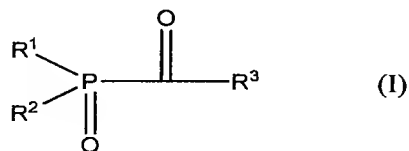
R<sup>7</sup>, R<sup>8</sup>, R<sup>9</sup>, R<sup>10</sup>, R<sup>11</sup> and R<sup>12</sup> are the same as or different from each other and each represents a hydrogen atom, a C<sub>1</sub> – C<sub>6</sub> alkyl group, a C<sub>1</sub> – C<sub>6</sub> alkoxy group or a halogen atom.

8. (Original) A printing ink according to Claim 2, in which said acylphosphine oxide is 2,4,6-trimethylbenzoyl diphenylphosphine oxide, bis(2,4,6-trimethylbenzoyl) phenylphosphine oxide, ethyl 2,4,6-trimethylbenzoyl diphenylphosphinate or bis(2,6-dimethoxybenzoyl)-2,4,4-trimethylpentylphosphine oxide.

9. (Currently amended) A method of producing a security document, which comprises ~~intaglio~~ printing on a substrate which does not fluoresce in at least the visible region under ultraviolet light using an intaglio security document printing ink, curing by free radical acrylate chemistry, and which security document printing ink includes a photoinitiator comprising an acylphosphine oxide and which security document printing ink does not fluoresce in at least the visible light wavelength region when exposed to ultraviolet light, and curing the ink by exposure to a source of radiant energy.

10. (Original) A method according to Claim 9, in which said radiant energy is ultraviolet.

11. (Previously presented) A method according to Claim 10, in which said acylphosphine oxide is a compound of formula (I):

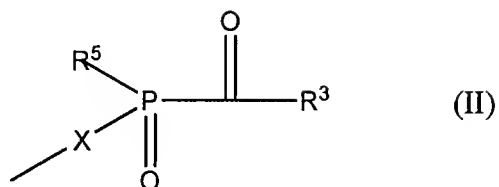


in which:

R<sup>1</sup> and R<sup>2</sup> are independently selected from C<sub>1</sub> – C<sub>12</sub> alkyl groups, C<sub>3</sub> – C<sub>7</sub> cycloalkyl groups, aryl groups, aralkyl groups, heterocyclic groups having from 3 to 7 ring atoms, of which at least one is a sulphur or nitrogen atom and groups of formula –COR<sup>3</sup>,

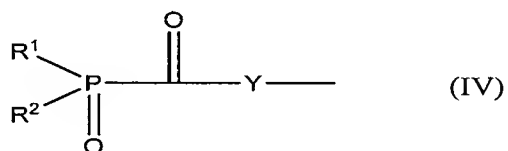
or R<sup>2</sup> represents a group of formula –OR<sup>4</sup>, where R<sup>4</sup> represents a C<sub>1</sub> – C<sub>6</sub> alkyl group,

an aryl group, an aralkyl group or a cationic group or atom, or R<sup>2</sup> represents a group of formula (II):



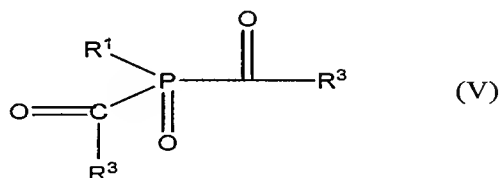
where X represents a C<sub>1</sub> – C<sub>18</sub> alkylene group or a biphenyldiyl group, and R<sup>5</sup> represents any of the groups represented by R<sup>1</sup> or a group of formula –OR<sup>4</sup>, and

R<sup>3</sup> represents a C<sub>1</sub> – C<sub>6</sub> alkyl group, an aryl group, a heterocyclic group having from 3 to 7 ring atoms, of which at least one is a sulphur or nitrogen atom, or a group of formula (IV):



where Y represents a C<sub>1</sub> – C<sub>18</sub> alkylene group a phenylene group, a cyclohexylene group or a biphenyldiyl group.

12. (Original) A method according to Claim 11, in which said acylphosphine oxide is a compound of formula (V):



in which:

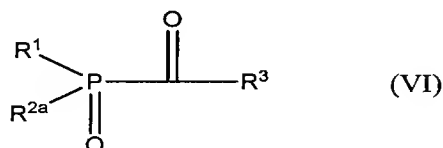
R<sup>1</sup> represents a C<sub>1</sub> – C<sub>12</sub> alkyl group, a cyclohexyl group or an aryl group; and R<sup>3</sup> is as defined in Claim 11.

13. (Original) A method according to Claim 12, in which each R<sup>3</sup> is independently selected from phenyl groups and phenyl groups having from 1 to 4 halogen and/or C<sub>1</sub> – C<sub>6</sub> alkyl and/or C<sub>1</sub> – C<sub>6</sub> alkoxy substituents.

14. (Previously presented) A method according to Claim 13, in which R<sup>1</sup> represents a C<sub>1</sub> – C<sub>12</sub> alkyl group or a phenyl group which is unsubstituted or has from 1 to 3 C<sub>1</sub> – C<sub>6</sub> alkyl or alkoxy substituents.



15. (Original) A method according to Claim 11, in which said acylphosphine oxide is a compound of formula (VI):

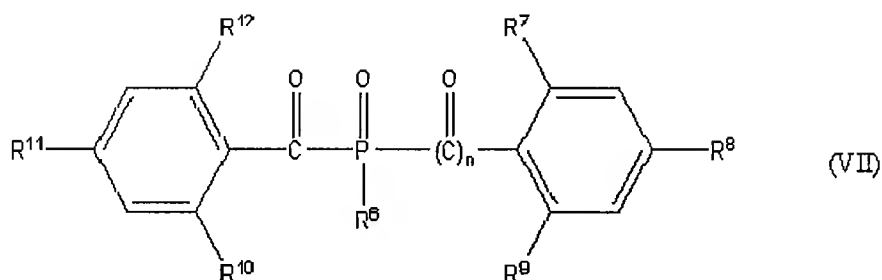


in which:

R¹ and R³ are as defined in Claim 11; and

R²ᵃ represents a C₁ – C₁₂ alkyl group, a C₃ – C₇ cycloalkyl group, an aryl group, an aralkyl group, a heterocyclic group having from 3 to 7 ring atoms, of which at least one is a sulphur or nitrogen atom, or a group of formula –OR⁴, where R⁴ is defined in Claim 11.

16. (Original) A method according to Claim 11, in which said acylphosphine oxide is a compound of formula (VII):



in which:

n is 0 or 1;

R<sup>6</sup> represents a C<sub>1</sub> – C<sub>12</sub> alkyl group, a C<sub>1</sub> – C<sub>6</sub> alkoxy group, a phenyl group or a phenyl group having from 1 to 4 substituents selected from C<sub>1</sub> – C<sub>6</sub> alkyl groups, C<sub>1</sub> – C<sub>6</sub> alkoxy groups and halogen atoms; and

R<sup>7</sup>, R<sup>8</sup>, R<sup>9</sup>, R<sup>10</sup>, R<sup>11</sup> and R<sup>12</sup> are the same as or different from each other and each represents a hydrogen atom, a C<sub>1</sub> – C<sub>6</sub> alkyl group, a C<sub>1</sub> – C<sub>6</sub> alkoxy group or a halogen atom.

17. (Previously presented) A method according to Claim 11, in which said acylphosphine oxide is 2,4,6-trimethylbenzoyl diphenylphosphine oxide, bis(2,4,6-trimethylbenzoyl)phenylphosphine oxide, ethyl 2,4,6-trimethylbenzoyl diphenylphosphinate or bis(2,6-dimethoxybenzoyl)-2,4,4-trimethylpentylphosphine oxide.

18. (Previously presented) A method according to Claim 9, in which the substrate is a paper.

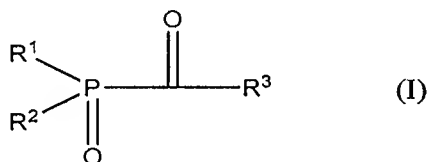
19. (Canceled)

20. (Currently amended) A method according to Claim ~~[[19]]~~ 9, in which the security document is a banknote.

21. (Canceled)

22. (Previously presented) A method according to Claim 12, in which R<sup>1</sup> represents a C<sub>1</sub> – C<sub>12</sub> alkyl group or a phenyl group which is unsubstituted or has from 1 to 3 C<sub>1</sub> – C<sub>6</sub> alkyl or alkoxy substituents.

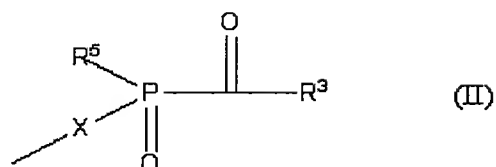
23. (Previously presented) A method according to Claim 9, in which said acylphosphine oxide is a compound of formula (I):



in which:

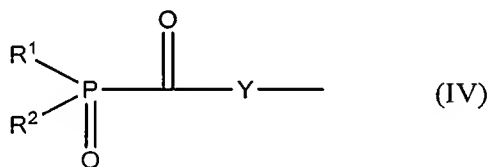
R<sup>1</sup> and R<sup>2</sup> are independently selected from C<sub>1</sub> – C<sub>12</sub> alkyl groups, C<sub>3</sub> – C<sub>7</sub> cycloalkyl groups, aryl groups, aralkyl groups, heterocyclic groups having from 3 to 7 ring atoms, of which at least one is a sulphur or nitrogen atom and groups of formula –COR<sup>3</sup>,

or R<sup>2</sup> represents a group of formula –OR<sup>4</sup>, where R<sup>4</sup> represents a C<sub>1</sub> – C<sub>6</sub> alkyl group, an aryl group, an aralkyl group or a cationic group or atom, or R<sup>2</sup> represents a group of formula (II):



where X represents a C<sub>1</sub> – C<sub>18</sub> alkylene group or a biphenyldiyl group, and R<sup>5</sup> represents any of the groups represented by R<sup>1</sup> or a group of formula –OR<sup>4</sup>, and

R<sup>3</sup> represents a C<sub>1</sub> – C<sub>6</sub> alkyl group, an aryl group, a heterocyclic group having from 3 to 7 ring atoms, of which at least one is a sulphur or nitrogen atom, or a group of formula (IV):



where Y represents a C<sub>1</sub> – C<sub>18</sub> alkylene group a phenylene group, a cyclohexylene group or a biphenyldiyl group.

24. (Previously presented) A printing ink according to Claim 3, in which R<sup>1</sup> represents a C<sub>1</sub> – C<sub>12</sub> alkyl group or a phenyl group which is unsubstituted or has from 1 to 3 C<sub>1</sub> – C<sub>6</sub> alkyl or alkoxy substituents.